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# Simulation Exercises

## Intertwining Double-Disaster Scenarios: Need to Strengthening Disaster Risk Governance

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### ABOUT RIKA

RIKA is a social entrepreneurship startup (DIPP-29629) with an aim of bringing research into the core of disaster management activities in India and other parts of South Asia. Resonating the Sendai declaration in relation to the need for widening the scope of Science and Technology in the disaster management, we at RIKA envision to act as a bridge connecting academic research, policy makers and field practitioners to make informed decisions and use of new technologies.

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### Introduction

Increasing population, unprecedented pace of development, and the adverse impact of climate change along with other innumerable challenges are adding to the vulnerability of communities across the world. Thus making disaster risk management activities more crucial, especially the disaster preparedness through planning, capacity building.

To do so, the simulation exercise has been seen as an effective tool. It is a fictional disaster event created with the purpose of testing the plans and procedures that would come into effect during a real emergency, helping to identify strengths and weaknesses (1). It also provides a valuable opportunity for the various stakeholders to meet and work together to improve inter departmental coordination, which considered to be the backbone of an effective disaster response activity.

The simulation exercises involve number of stakeholders, depending upon its size and purpose. It may bring together a variety of actors in disaster risk management – disaster management department, response agencies, line departments, industries, educational institutions, community members, and non-government organisations etc.

### What are the key steps of conducting simulation exercise?

The entire process of planning and conducting the simulation exercise should be inclusive, participatory and well-coordinated with an aim of building ownership among all stakeholders. The critical steps involved in planning, execution and evaluation of simulation exercise are as mentioned in the figure 1.


Figure 1: Key steps of conducting simulation exercise

1. Patton R. (2014): Disaster simulation exercises: A how to guide for the Pacific

***Intertwining Double-Disaster Scenarios: A case of Simulation Exercise in Cuttack city of Odisha, India***

*The Cuttack city of Odisha is located near the east coast of India, which is one of the six most cyclone-prone areas in the world. Since the 1999 Super Cyclone, four major cyclones have struck the city. Phailin in 2013, Hudhud in 2014, Titli in 2018 and Fani in 2019. The very recent cyclones Fani of 2019 and Amphan of 2020 resulted in serious damage and disruption of all the critical services and infrastructures.*

*In December 2019, Cuttack Municipal Corporation (CMC) with support of UNDP and RIKA India Pvt. Ltd. conducted a simulation exercise based on a 'double disaster scenario' - a cyclone triggering flooding and fire incidents simultaneously at different vulnerable pockets of the city.*

*The entire process of planning, conducting and evaluating the simulation exercise was participatory in nature and included all the key line departments and response agencies. To test the adequacy and management of resources available with different stakeholders in a real time situation, simultaneous incidents were planned in various locations of the city; thus bringing the simulation exercise very close to a real disaster situation, where cascading events would happen simultaneously. Another significant feature of the exercise conducted is that unlike many such exercises, this particular exercise was not limited to only response by specialized agencies but it also focused on the critical aspects of last-mile dissemination of early warning right from the control room to the areas likely to be affected i.e. the low lying wards. It goes further to emphasise the real challenge of mobilizing the community for evacuation to safe shelters.*

The COVID19 pandemic has tested the limits of institutional and community resilience and its capacities across the world and now posing scenarios of an 'unprecedented double disaster'. It has already been witnessed and its risk is increasing in the countries in the Asia-Pacific region as they are entering their cyclone, drought, heatwaves or monsoon seasons. (2)

In the backdrop of the Bangkok Principles which calls for integration of biological hazards into disaster risk management, it is pertinent to include in the DRR planning, the aspects of simultaneous occurrence of biological disaster along with any other disaster like earthquake, floods, etc. The recent cases of Tropical Cyclone Harold in in the Pacific causing widespread destruction the Solomon Islands, Vanuatu, Fiji, Tonga; flashfloods in Spain, etc. demonstrate the possibility of such simultaneous occurrences.

Further, it is also pertinent that risk of cascading and Natech hazards (natural hazards triggering technological disasters) are also increasing. Examples of multiple hazardous materials releases triggered by the Turkey earthquake of August 1999, chlorine releases in the Czech Republic during 2002 and the Fukushima nuclear accident nuclear triggered by the Great East Japan Earthquake and Tsunami of 2011 teach us to integrate these aspects during disaster risk management planning and simulation exercise.



2. Combatting the dual challenge of COVID 19 and Climate related disasters, UNDRR Asia Pacific COVID 19 Brief, 27 April 2020